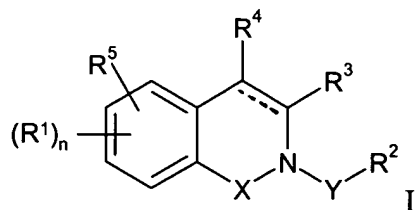


WHAT IS CLAIMED IS:

1. A compound of the formula:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

n is from 0 to 3;

X is $-\text{CR}^a\text{R}^b-$ or $-\text{C}(\text{O})-$, wherein R^a and R^b each independently are hydrogen or

alkyl;

---- is an optional bond;

Y is $-\text{SO}_2-$ when X is $-\text{CR}^a\text{R}^b-$ and Y is $-(\text{CR}^c\text{R}^d)_p-$ when X is $-\text{C}(\text{O})-$,

wherein p is from 1 to 3 and R^c and R^d each independently are hydrogen or alkyl;

each R^1 independently is halo, alkyl, haloalkyl, heteroalkyl, hydroxy, nitro,

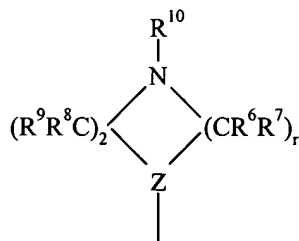
alkoxy, cyano, $-\text{S}(\text{O})_q-\text{R}^e$, $-\text{NR}^e\text{R}^f$, $-\text{C}(=\text{O})-\text{NR}^e\text{R}^f$, $-\text{SO}_2-\text{NR}^e\text{R}^f$, $-\text{N}(\text{R}^e)-\text{C}(=\text{O})-\text{R}^f$, or $-\text{C}(=\text{O})$

R^e , wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;

R^2 is aryl, heteroaryl or cycloalkyl;

R^3 and R^4 each independently are hydrogen or alkyl; and

R^5 is at the 5- or 6- position of the isoquinoline ring system and is of the formula:



wherein:

Z is $-\text{N}-$ or $-\text{CH}-$;

r is from 1 to 3; and

R^6 , R^7 , R^8 , R^9 and R^{10} each independently are hydrogen or alkyl.

2. The compound of claim 1, wherein R⁵ is located at the 5- position of the isoquinoline ring system.

5 3. The compound of claim 2, wherein Z is -N-.

4. The compound of claim 3, wherein X is -CR^aR^b- and Y is -SO₂-.

5. The compound of claim 3, wherein X is -C(O)- and Y is -(CR^cR^d)_p-.

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6. The compound of claim 4, wherein R^a and R^b are hydrogen.

7. The compound of claim 6, wherein R² is aryl.

15

8. The compound of claim 7, wherein R² is optionally substituted phenyl.

9. The compound of claim 7, wherein R² is optionally substituted naphthalenyl.

10. The compound of claim 7, wherein R² is selected from the group consisting of
20 phenyl, 2-halophenyl, 3-halophenyl, 4-halophenyl, 2,3-dihalophenyl, 2,4-dihalophenyl, 3,4-
dihalophenyl, 2,5-dihalophenyl, 3,5-dihalophenyl, 2,6-dihalophenyl, 2-haloalkylphenyl, 3-
haloalkylphenyl, 4-haloalkylphenyl, 2,3-dihaloalkylphenyl, 2,4-dihaloalkylphenyl, 3,4-
dihaloalkylphenyl, 2,5-dihaloalkylphenyl, 3,5-dihaloalkylphenyl, 2,6-dihaloalkylphenyl, 2-
alkoxyphenyl, 3-alkoxyphenyl, 4-alkoxyphenyl, 2,3-dialkoxyphenyl, 2,4-dialkoxyphenyl, 3,4-
25 dialkoxyphenyl, 3,5-dialkoxyphenyl, 2,5-dialkoxyphenyl, 2,6-dialkoxyphenyl, 2-alkylphenyl, 3-
alkylphenyl, 4-alkylphenyl, 2,3-dialkylphenyl, 2,4-dialkylphenyl, 3,4-dialkylphenyl, 3,5-
dialkylphenyl, 2,5-dialkylphenyl, and 2,6-dialkylphenyl.

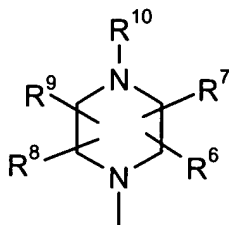
11. The compound of claim 9, wherein R² is naphthalene-1-yl or naphthalene-2-yl.

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12. The compound of claim 7, wherein n is 0.

13. The compound of claim 7, wherein R³ and R⁴ are hydrogen.

14. The compound of claim 4, wherein R⁵ is of the formula:



and R⁶, R⁷, R⁸, R⁹ and R¹⁰ are as defined in claim 1.

15. The compound of claim 14, wherein R⁶, R⁷, R⁸, R⁹ and R¹⁰ are hydrogen.

16. The compound of claim 14, wherein R⁶, R⁷, R⁸ and R⁹ are hydrogen and R¹⁰ is alkyl.

17. The compound of claim 5, wherein p is 1 and R^c and R^d are hydrogen.

18. The compound of claim 17, wherein R² is aryl.

19. The compound of claim 18, wherein R² is optionally substituted phenyl.

20. The compound of claim 19, wherein R² is optionally substituted naphthalenyl.

21. The compound of claim 19, wherein R² is selected from the group consisting of phenyl, 2-halophenyl, 3-halophenyl, 4-halophenyl, 2,3-dihalophenyl, 2,4-dihalophenyl, 3,4-dihalophenyl, 2,5-dihalophenyl, 3,5-dihalophenyl, 2,6-dihalophenyl, 2-haloalkylphenyl, 3-haloalkylphenyl, 4-haloalkylphenyl, 2,3-dihaloalkylphenyl, 2,4-dihaloalkylphenyl, 3,4-dihaloalkylphenyl, 2,5-dihaloalkylphenyl, 3,5-dihaloalkylphenyl, 2,6-dihaloalkylphenyl, 2-alkoxyphenyl, 3-alkoxyphenyl, 4-alkoxyphenyl, 2,3-dialkoxyphenyl, 2,4-dialkoxyphenyl, 3,4-dialkoxyphenyl, 3,5-dialkoxyphenyl, 2,5-dialkoxyphenyl, 2,6-dialkoxyphenyl, 2-alkylphenyl, 3-

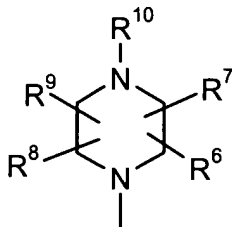
alkylphenyl, 4-alkylphenyl, 2,3-dialkylphenyl, 2,4-dialkylphenyl, 3,4-dialkylphenyl, 3,5-dialkylphenyl, 2,5-dialkylphenyl, and 2,6-dialkylphenyl.

22. The compound of claim 20, wherein R^2 is naphthalene-1-yl or naphthalene-2-yl.

23. The compound of claim 5, wherein n is 0.

24. The compound of claim 5, wherein R^3 and R^4 are hydrogen.

25. The compound of claim 5, wherein R^5 is of the formula:

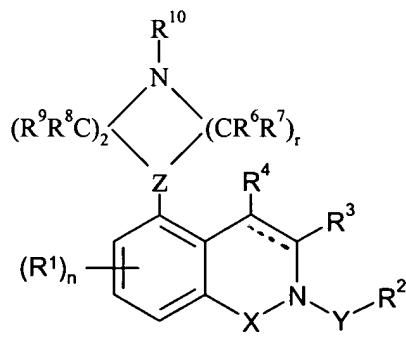


and R^6 , R^7 , R^8 , R^9 and R^{10} are as defined in claim 1.

26. The compound of claim 25, wherein R^6 , R^7 , R^8 , R^9 and R^{10} are hydrogen.

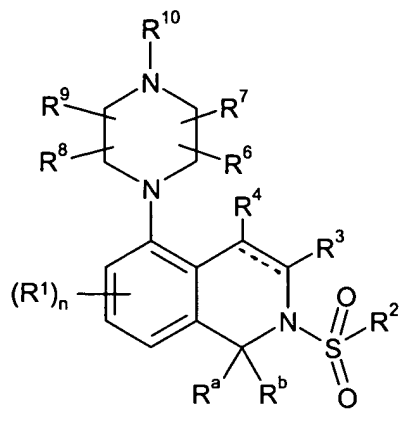
27. The compound of claim 25, wherein R^6 , R^7 , R^8 and R^9 are hydrogen and R^{10} is alkyl.

28. The compound of claim 1, wherein said compound is of the formula:



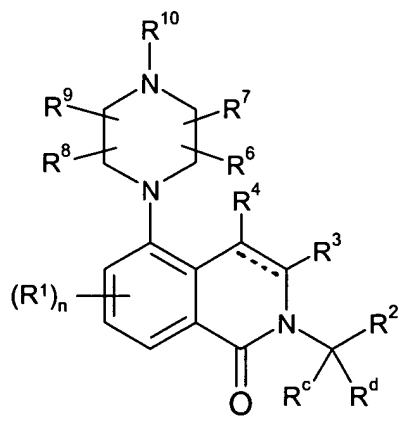
and wherein n , r , X , Y , Z , R^1 , R^2 , R^3 , R^4 , R^6 , R^7 , R^8 , R^9 and R^{10} are as defined in claim 1.

29. The compound of claim 1, wherein said compound is of the formula:



5 and wherein n, R¹, R², R³, R⁴, R⁶, R⁷, R⁸, R⁹, R¹⁰, R^a and R^b are as defined in claim 1.

30. The compound of claim 1, wherein said compound is of the formula:



and wherein n, R¹, R², R³, R⁴, R⁶, R⁷, R⁸, R⁹, R¹⁰, R^c and R^d are as defined in claim 1.

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31. The compound of claim 1, wherein said compound is selected from the group consisting of:

2-benzenesulfonyl-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-benzenesulfonyl-5-(4-methylpiperazin-1-yl)-1,2,3,4-tetrahydroisoquinoline;

15 2-(4-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

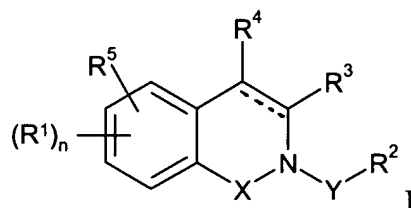
2-(4-methoxy-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3,5-dichloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(3,5-bis-trifluoromethyl-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(2,5-dimethoxy-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 5 2-(3-chloro-4-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(2-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(2-chloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(3-chloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(3-methyl-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 10 2-(2,3-dichloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(2-chloro-4-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(2,5-dichloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(naphthalene-1-sulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 2-(naphthalene-2-sulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;
 15 2-benzyl-5-piperazin-1-yl-3,4-dihydro-2*H*-isoquinolin-1-one;
 2-benzyl-5-(4-ethyl-piperazin-1-yl)-3,4-dihydro-2*H*-isoquinolin-1-one;
 2-(2-Methanesulfonyl-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydro-isoquinoline;
 3-(5-Piperazin-1-yl-3,4-dihydro-1*H*-isoquinoline-2-sulfonyl)-benzamide;
 [2-(5-Piperazin-1-yl-3,4-dihydro-1*H*-isoquinoline-2-sulfonyl)-phenyl]-urea; and
 20 8-(5-Piperazin-1-yl-3,4-dihydro-1*H*-isoquinoline-2-sulfonyl)-quinoline.

32. A pharmaceutical composition comprising an effective amount of at least one compound of claim 1 in admixture with a pharmaceutically acceptable carrier.

33. A method for treating a central nervous system disease state in a subject, said method comprising administering to said subject a therapeutically effective amount of a compound of the formula:



or a pharmaceutically acceptable salt or prodrug thereof,

wherein:

n is from 0 to 3;

X is $-\text{CR}^a\text{R}^b-$ or $-\text{C}(\text{O})-$, wherein R^a and R^b each independently are hydrogen or

5 alkyl;

---- is an optional bond;

Y is $-\text{SO}_2-$ when X is $-\text{CR}^a\text{R}^b-$ and Y is $-(\text{CR}^c\text{R}^d)_p-$ when X is $-\text{C}(\text{O})-$,

wherein p is from 1 to 3 and R^c and R^d each independently are hydrogen or alkyl;

each R^1 independently is halo, alkyl, haloalkyl, heteroalkyl, hydroxy, nitro,

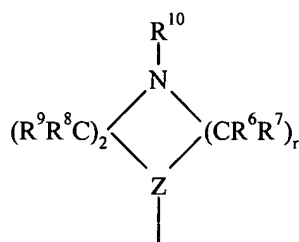
10 alkoxy, cyano, $-\text{S}(\text{O})_q-\text{R}^e$, $-\text{NR}^e\text{R}^f$, $-\text{C}(=\text{O})-\text{NR}^e\text{R}^f$, $-\text{SO}_2-\text{NR}^e\text{R}^f$, $-\text{N}(\text{R}^e)-\text{C}(=\text{O})-\text{R}^f$, or $-\text{C}(=\text{O})$

R^e , wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;

R^2 is aryl, heteroaryl or cycloalkyl;

R^3 and R^4 each independently are hydrogen or alkyl; and

R^5 is of the formula:



15

wherein:

Z is $-\text{N}-$ or $-\text{CH}-$;

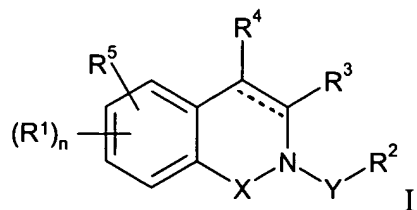
r is from 1 to 3; and

R^6 , R^7 , R^8 , R^9 and R^{10} each independently are hydrogen or alkyl.

20

34. The method of Claim 33, wherein the disease state is selected from psychoses, schizophrenia, manic depressions, neurological disorders, memory disorders, attention deficit disorder, Parkinson's disease, amyotrophic lateral sclerosis, Alzheimer's disease and Huntington's disease.

35. A method for treating a disorder of the gastrointestinal tract in a subject, said method comprising administering to said subject a therapeutically effective amount of a compound of the formula:



5 or a pharmaceutically acceptable salt or prodrug thereof,
wherein:

n is from 0 to 3;

X is $-\text{CR}^a\text{R}^b-$ or $-\text{C}(\text{O})-$, wherein R^a and R^b each independently are hydrogen or alkyl;

10 ---- is an optional bond;

Y is $-\text{SO}_2-$ when X is $-\text{CR}^a\text{R}^b-$ and Y is $-(\text{CR}^c\text{R}^d)_p-$ when X is $-\text{C}(\text{O})-$,
wherein p is from 1 to 3 and R^c and R^d each independently are hydrogen or alkyl;

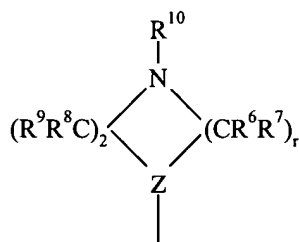
each R^1 independently is halo, alkyl, haloalkyl, heteroalkyl, hydroxy, nitro,
alkoxy, cyano, $-\text{S}(\text{O})_q-\text{R}^e$, $-\text{NR}^e\text{R}^f$, $-\text{C}(=\text{O})-\text{NR}^e\text{R}^f$, $-\text{SO}_2-\text{NR}^e\text{R}^f$, $-\text{N}(\text{R}^e)-\text{C}(=\text{O})-\text{R}^f$, or $-\text{C}(=\text{O})$

15 R^e , wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;

R^2 is aryl, heteroaryl or cycloalkyl;

R^3 and R^4 each independently are hydrogen or alkyl; and

R^5 is of the formula:



20 wherein:

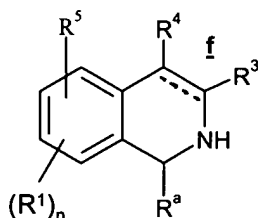
Z is $-\text{N}-$ or $-\text{CH}-$;

r is from 1 to 3; and

R^6 , R^7 , R^8 , R^9 and R^{10} each independently are hydrogen or alkyl.

36. A method for producing a substituted isoquinoline compound, said method comprising:

reacting a compound of the formula:



wherein:

n is from 0 to 3;

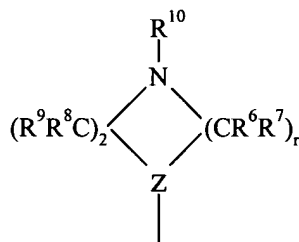
each R^1 independently is halo, alkyl, haloalkyl, heteroalkyl, hydroxy, nitro, alkoxy, cyano, $-S(O)_q-R^e$, $-NR^eR^f$, $-C(=O)-NR^eR^f$, $-SO_2-NR^eR^f$, $-N(R^e)-C(=O)-R^f$, or $-C(=O)-$

R^e , wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;

R^a , R^3 and R^4 each independently are hydrogen or alkyl;

---- is an optional bond;

R^5 is 5- or 6- position of the isoquinoline ring system and is of the formula:



wherein:

r is from 1 to 3;

Z is $-N-$ or $-CH-$; and

R^6 , R^7 , R^8 , R^9 and R^{10} each independently are hydrogen or alkyl;

with a sulfonyl halide of the formula: R^2-SO_2-G wherein R^2 is aryl, heteroaryl or cycloalkyl and G is halo;

to yield a compound of the formula:

